

The history of British administration in this wild tract, up to the time of the Santal rebellion of 1856, can scarcely be held up as a great example. As for the patriarchal system which still prevails, Mr. Risley, in an introduction which, from the pen of so great an ethnological authority, is somewhat disappointing, throws some doubts on its superiority to other methods of dealing with aboriginal tribes. Perhaps, in later years, Mr. Bradley-Birt's enthusiastic admiration of it may cool. As matters stand, his enthusiasm, and his evident sympathy with the simple peoples he describes, serve to enhance the charm of his work.

To the Anglo-Indian this volume will recall much that is pleasant; to the tourist, and even to the stay-at-home Englishman, it will afford a bright glimpse of native country life which is not to be found on the beaten track.

NOTES.

At the meeting of the Royal Society on May 18 the following were elected foreign members:—Prof. L. Hermann, Koenigsberg; Prof. H. A. Lorentz, Leyden; Prof. H. Moissan, Paris; and Prof. Hugo de Vries, Amsterdam.

THE annual visitation of the Royal Observatory, Greenwich, will take place on Saturday next, June 3.

THE international conference having for its object the establishment of an international institute of agriculture was opened in Rome on Sunday, May 28, in the presence of the King of Italy. On Monday the conference held a sitting at the Accademia dei Lincei, and the Foreign Minister, Signor Tittoni, opened the proceedings with an address.

THE English Arboricultural Society has been granted permission by the King to change its name to the "Royal English Arboricultural Society."

PROF. J. N. LANGLEY, F.R.S., will give one of the general lectures at the meeting of the Association of German Naturalists and Physicians, which will open at Meran on September 24. His subject will be "Recent Researches on the Nervous System."

A REUTER telegram from Portici states that Vesuvius has for some days been in active eruption. At 7 p.m. on May 27 the western side of the small terminal cone collapsed, and a large quantity of lava burst forth, which in an hour's time reached the base of the great cone, at Atrio Cavallo, one kilometer distant.

WE learn from the *Board of Trade Journal* that the *Gaceta de Madrid* for May 11 contained the text of a Royal Order providing for the duty-free admission into Spain of instruments and accessories carried by foreign men of science deputed to observe the eclipse of the sun on August 30.

ACCORDING to a Reuter telegram, dated New York, May 27, the Cunard liner *Campania* reports that she was in continuous communication with land, by wireless telegraphy, throughout her entire voyage from Liverpool. In mid-ocean she had simultaneous communication with America and Europe, a feat which had not previously been accomplished.

A CORRESPONDENT of the *Times* states that in the early part of May enormous shoals of dead fish were thrown up for a considerable distance along the sea coast by Karachi. The whole beach was strewn with dead fish, lying in some places five or six inches deep. The Port Trust authorities had to make arrangements for the removal and burial of these millions of fish. Captain Belton, of the steamship

City of Dundee, on arriving at Karachi reported some very curious electrical phenomena about a hundred miles out to sea, repeated flashes of light being observed to pass over the surface of the ocean in a curious way.

AN international congress for the study of radiology and ionisation will be held at Liège on September 12–14 inclusive. The congress will be divided into a physical section and a biological section. The former will be concerned with the physics of electrons, radio-activity and dependent transformations, meteorological and astronomical phenomena and their relation to ionisation and radio-activity. In the biological section the subjects to be considered will include the physiological properties of various radiations and of radio-activity, and their medical value and application. The method of procedure in this section will be determined upon by a special committee presided over by Profs. Bouchard and d'Arsonval. The other members of this committee are Drs. Bécère, Bergonié, Broca, Charpentier, Charrin, Danysz, and Oudin. There will also be a general committee, presided over by M. Henri Becquerel, to examine, classify, and decide upon such reports, papers, and notes as may be offered. The acting president of the congress is to be Prof. H. Kuborn, president of the Royal Medical Society of Belgium, and the general secretary, to whom all communications or contributions should be sent as soon as possible, is Dr. J. Daniel, rue de la Prévôté, 1, Brussels.

MENTION has already been made of the recent visit of British physicians and surgeons to Paris, and the cordial and enthusiastic welcome extended to them by French men of science, as well as by the State and municipal authorities. Further particulars of the visit are given in the *British Medical Journal* of May 20. Among the numerous receptions arranged by the scientific and medical societies and by civil bodies of every kind to do honour and give pleasure to the British visitors, no meeting was more appreciated than that which gave the British men of science the opportunity of paying homage to the memory of Pasteur. On May 11 the visitors attended at the Pasteur Institute to witness the ceremony of placing a wreath upon the tomb of Pasteur in the crypt of the institute by Dr. J. Kingston Fowler, dean of the medical faculty of the University of London. Dr. Roux, the director of the Institute, conducted the visitors and a distinguished party of French medical men to the gates of the crypt, where Dr. Fowler delivered in French the speech referred to in *NATURE* of May 18 (p. 63), in which he craved permission to place a wreath on the tomb of the master, who accomplished so much for science and for humanity, and to whose labours the institute is a fitting memorial. Dr. A. Waller, dean of the faculty of science of the University of London, followed with an eloquent eulogy, also delivered in French. He laid great stress upon the value to humanity of Pasteur's work in the direction of the infinitely little, and spoke of Pasteur as *le médecin de la médecine*. Dr. Waller maintained that in a thousand years' time historians will not speak much of the nineteenth century as remarkable for the invention of the locomotive and other mechanisms, but rather as the epoch in which Pasteur inaugurated so brilliantly the study of the infinitely small. The earnest speeches, and the impressive scene as the visitors passed before Pasteur's tomb in respectful homage to their master, made the occasion a memorable one. The evidence thus given of the reverence in which Pasteur's memory is held should help to cement the friendly relations existing between France and Britain, and to foster that spirit of mutual confidence—that comity of nations—which already exists in the world of science.

THE May number of *Museum News* (Brooklyn Institute) contains an interesting notice of specimens in the collection illustrating the 'now obsolete manufacture of tapa cloth in Hawaii and other Polynesian islands.

A PRELIMINARY report, by Dr. H. W. Conn, on the fresh-water protozoans of Connecticut, issued as Bulletin No. 2 of the Connecticut Geological and Natural History Survey, is illustrated by no less than thirty-four beautifully executed plates. Hitherto the American fresh-water representatives of these lowly organisms have been but little studied, and the present research is merely a prelude to a fuller account of their distribution and their relation to the purity of drinking water. Descriptions of species are altogether omitted in this report, and even the generic position of some of the forms mentioned is left more or less undecided.

IN connection with the preceding paragraph may be appropriately noticed Mr. D. J. Scourfield's address (delivered in December last) on fresh-water biological stations, which is published in the April issue of the *Journal of the Quekett Microscopical Club*, since this also deals with the effects of organisms on the purity of water used for domestic purposes. The gradual awakening of interest in the subject of the detailed study of fresh waters and their organisms is sketched, and the history of the establishment of stations for the purpose briefly described, special reference being made to the one founded by Mr. E. Gurney on Sutton Broad, Norfolk, in 1902. The lecturer concludes with remarks about what fresh-water biological stations should be, whenever the requisite financial means are obtainable.

AMONG other monographs on American invertebrates recently received is a revision of the beetles of the family Staphylinidae included in the section Pæderini. In this article, forming No. 2 of vol. xv. of the *Transactions of the St. Louis Academy*, the author, Mr. T. L. Casey, points out that the taxonomic problem presented by these beetles is one of great interest in reference to the comparative morphology of the tribe. Genera from all parts of the world are included in the revision, but with the exception of the types of new generic forms, the only species catalogued are those inhabiting America to the northward of Mexico.

IN an article on the affinities of *Equisetum* in the May number of the *American Naturalist* Prof. D. H. Campbell comes to the conclusion that these archaic plants are related to ferns rather than to lycopods, and that both ferns and equisetums are probably divergent branches from a common ancestral stock. In the same issue Mr. D. D. Jackson discusses the movements of diatoms, many of which appear to be due to the evolution of oxygen gas produced by the activity of the chlorophyll in these organisms. Attention may likewise be directed to Mr. A. H. Clark's paper on the habits of the important West Indian food-fish known locally as "whitebait" or "trif" (*Sicydium plumieri*).

IN the report of the delegates of the University Museum for 1904, published on May 16 as a supplement to the *Oxford University Gazette*, special attention is directed by the Hope professor of zoology (Prof. Poulton) to the increase in the insect collection and the work that has been accomplished, or is in progress, in connection with the insect collection, which is rapidly becoming one of the finest in the world. The most recent addition is the collection of 7000 British Microlepidoptera presented by Mrs. Bazett, of Reading, another splendid acquisition being the

collection of Hymenoptera and Lepidoptera bequeathed by Mr. G. A. J. Rothney. The report also alludes to the recent decisive confirmation of the existence of three distinct mimetic types of female in a South African Papilio, and to the remarkable features presented by certain southern butterfly faunas, which are almost wholly of a northern type. The editing of the Burchell manuscript, and the identification of the specimens in the collection of the great traveller referred to therein, are also mentioned.

AMONG the more important articles in the issues of the *Proceedings of the Philadelphia Academy* for the current year, the following may be specially mentioned. To the January issue Mr. C. W. Johnson contributes an annotated list of the type-specimens of Cretaceous invertebrates in the collection of the academy, while Mr. H. W. Fowler gives the second instalment of a paper on new or little-known scombroid fishes. Later on Mr. H. Crawley discusses the movements of gregarines; and in the February issue Mr. H. A. Pilsbry describes a number of new Japanese marine molluscs. Both entomologists and morphologists will find much to interest them in an article by Dr. E. F. Phillips on the structure and development of the compound eye of the bee, while Mr. Crawley's preliminary notice of a new sporozoon (*Coelosporidium blattellae*) found in the cockroach (*Blattella germanica*), and Mr. T. H. Montgomery's contribution to our knowledge of the spermatogenesis of certain spiders and remarks on chromosome reduction, will appeal to specialists in such matters.

A RECENT issue of the *Jenaische Zeitschrift* contains the report of an address delivered in June last before the Medical and Scientific Society of Jena by Prof. E. Haeckel on the progress of biology in that city during the nineteenth century. Confining himself chiefly to morphology, and dwelling specially on the various theories which have been advanced in regard to that of the vertebrate skull, the professor pointed out that in Jena the "science century" may be divided into three periods. The first of these, during which Schleiden advanced the cell-theory, extended to 1838; then followed an interval of twenty years, after which, in 1859, came Darwin's epoch-making theory of the evolution of species. After referring to the work of Blatt on embryology and development, the lecturer emphasised the morphological importance of the "vertebral theory of the skull" enunciated by Goethe and Oken in the first third of the century, and of Huschke's labours in connection with the development of the skull and the sense organs in the second third. A whole paragraph is devoted to Goethe's discovery of the premaxilla in man. Oscar Schmidt, Johannes Müller, Carl Gegenbaur, and the other great names associated for longer or shorter periods with Jena and its teaching, receive in turn their share of praise in this admirable historical address.

MM. CALMETTE AND BRETON have repeated the experiments of Loos and others on the transference of infection in ankylostomiasis through the skin. They find that the larvæ of both the human and the canine *Ankylostoma* pass with the greatest facility through the skin of the dog, causing infection of the animal (*Acad. de Méd.*, Paris, March 24).

THE *Bulletin of the College of Agriculture of the Imperial University, Tokyo* (vol. vi., No. 4), contains several papers of interest on the value and use of artificial manures for various crops, and others on the flowering of the bamboo, on oxidases, on the determination of fusel oil, on a bacillus observed in flacherie, &c. With regard to flacherie (a destructive disease affecting silkworms), the conclusion is

arrived at that it is not caused by any special bacterium, but by several different species of common occurrence on mulberry leaves.

WE have received part ii. of the reports of the commission appointed for the investigation of Mediterranean fever, part i. of which has already been noticed in NATURE (May 4, p. 17). Dr. R. W. Johnstone deals with the sanitary circumstances and prevalence of the disease in the Maltese Islands, but is unable to give any definite pronouncement on the mode of human infection. The facts do not indicate that dust, personal contact, or excretal pollution play an important part in the spread of the disease. Staff-Surgeon Bassett-Smith, R.N., details experiments on the saprophytic life of the *Micrococcus melitensis*, and Dr. Eyre on the virulence of this organism for the guinea-pig.

THE Bulletins of the Bureau of Government Laboratories, Manila, several of which have from time to time been noticed in these columns, always contain matter of interest. No. 20, in five articles, discusses various diseases occurring in the Philippine Islands, and in No. 21 Dr. Strong deals with certain questions relating to the virulence of micro-organisms and their immunising powers. The conclusion is arrived at that a virulent cholera spirillum possesses a greater number of bacteriolytic and agglutinable haptophore groups, or these groups are endowed with a greater binding power for uniceptors and amboceptors than the avirulent. That is to say, virulent cholera microbes have a greater capacity than avirulent microbes for uniting with living cells and their products.

AN article on roses by Mr. Jekyll in the April number of the *Bulletin of the Department of Agriculture, Jamaica*, warns growers against attempting to grow hybrid perpetuals in the island. First place is assigned to the tea and noisette sections, which produce good results except in so far as the sun is too strong for some, and a good selection of suitable roses may be made from the list which is given.

A FLORA of the islands of Margarita and Coche, lying off the coast of Venezuela, is being prepared by Mr. J. R. Johnston, but meantime he has published a list of new plants from these islands in the *Proceedings of the American Academy of Arts and Sciences* (April). A new genus, Anguriopsis, is formed having affinities with the cucurbitaceous genus Anguria. Among the new species are a *Bactris*—a palm with handsome foliage—two new orchids, and several trees, including a *Capparis*, a *Cæsalpinia*, and a *Casearia*. The new species are for the most part additions to genera or sections of the genera which are confined to tropical America.

ONE of the most fruitful lines of recent research in botany has been concerned with the investigation of fossil seeds, of which several species of *Lagenostoma* are the best known. The evidence in favour of referring these seeds to certain vegetative portions of Carboniferous plants, formerly regarded as fern fronds, formed the subject of Dr. Scott's presidential address to the Royal Microscopical Society, which is published in the April number of the *Journal*. The cycadofilicinean position assigned to *Lyginodendron Oldhamium*, which shows a sphenopteris type of foliage, was confirmed by the evidence which connected the same plant with *Lagenostoma Lomaxi*. Mr. Kidston's discovery of the fructification of *Neuropteris heterophylla* fixed the seed to another typical fern-frond,

and recent research points to the production of winged seeds by a species of *Adiantites*.

IN a sketch of the geology of Upper Assam (*Records Geol. Surv. India*, xxxi., part iv.) Mr. J. Malcolm Maclaren describes the region as a great plain, 320 feet to 500 feet above sea-level, bounded on the north-west by the eastern Himalayas and on the south-east by the Patkai ranges, while the head of the valley is closed in by the crystalline and metamorphic rocks of the Miju ranges. Upper Tertiary sandstones occur at a considerable height (maximum 6900 feet) on the Patkai and Himalaya ranges, but have not been observed anywhere on the heights of Miju. Attention is directed to the general uptilting and reversed faulting of the Tertiary rocks on either side of the great plain, and to the deflection in the trend of the Patkai range where it abuts against that of Miju. These features are attributed to earth stresses during the formation of the mountains. The author concludes that the Patkais and Himalayas, in their later growth at least, are of contemporaneous development, and that both are orographically and geologically distinct from the great meridional mountain system of Upper Burma, Tibet, and western China. In another article Mr. Maclaren deals with the auriferous occurrences of Assam. Gold was there worked in ancient times, and it is distributed in extremely small percentages throughout the alluvial gravels of the Brahmaputra; but the author is of opinion that only two or three localities are worthy of further prospecting, and that these are likely to yield comparatively small results. He believes that in Assam, as in most other parts of India, the climatic conditions that make for concentration of gold have always been absent. There never has been that even flow of waters confined within well-marked banks, that after a lengthened period results in a separation and local concentration according to specific gravity of the river-borne minerals in "leads" and "runs." On the other hand, there have been annual floods, varying so quickly in height, velocity, and direction that the slight local concentration of one year has been effaced by succeeding floods.

WE have received vol. ii. of the year-book of the Austro-Hungarian Meteorological Observatory of Agram for the year 1902, a large folio publication containing fifty pages of tables giving detailed and summarised observations and results at a number of stations in Croatia and Slavonia. The size of the work is somewhat unwieldy, but the tables are very legible, and have been carefully prepared on the plan of the international scheme for meteorological publications. Hourly readings, and hourly and daily means, are given for Agram.

THE recently published annual *Journal of the Scottish Meteorological Society* (third series, Nos. 20 and 21) contains an interesting discussion of the rainfall of the Ben Nevis observatories, by Mr. Andrew Watt. The measurement of precipitation on the summit was attended with great difficulties; the high wind velocities, at an altitude of 4400 feet, made the registration of snow (which mostly falls between October and May) and even of rain somewhat uncertain. The tables show the falls at the upper and lower stations for the nineteen-year period 1885-1903. The average annual rainfall at the summit was 160.8 inches, and that at the foot 78.6 inches; in individual years the amounts varied from 49 per cent. above to 33 per cent. below the mean values on the summit, and from 45 per cent. above to 23 per cent. below at the lower station.

With regard to daily range, the author states that, speaking very generally, rain falls more frequently, but less heavily, by night than by day, at the foot of the mountain; whilst on the summit the variations are less pronounced, but, on the whole, are in sympathy with those at Fort William. On the top of the mountain falls of 4 to 6 inches in a day were occasionally recorded.

A GOOD oil-immersion lens at a moderate price has long been wanted by histologists and bacteriologists. This need has been met by Mr. Gowland, of Selsea, who has produced an objective of $1/12$ -inch focal length and 1.30 numerical aperture at a price of 2*l.* 15*s.* It is an admirable piece of apparatus, and is well corrected for spherical and chromatic aberration. We have tested it on a number of objects, and can recommend it as thoroughly efficient. It is claimed by the maker that it has good photographic qualities.

IN a paper published in the *Gazzetta* for April 3, Dr. Italo Bellucci proves that the so-called hydrated platinum oxide, $\text{PtO}_{2.4}\text{H}_2\text{O}$, is in reality a platinum acid of the structure $\text{H}_2\text{Pt}(\text{OH})_6$, corresponding with chloroplatinic acid H_2PtCl_6 , and forming a series of well defined salts of the type $\text{M}_2\text{Pt}(\text{OH})_6$. In a second paper, written in conjunction with N. Parravano, the metallic stannates and plumbates are shown to be derived from similar acids, $\text{H}_2\text{Sn}(\text{OH})_6$ and $\text{H}_2\text{Pb}(\text{OH})_6$, whilst the three salts $\text{K}_2\text{Pt}(\text{OH})_6$, $\text{K}_2\text{Sn}(\text{OH})_6$, and $\text{K}_2\text{Pb}(\text{OH})_6$ are strictly isomorphous. The views brought forward are of considerable importance from the standpoint of the systematisation of inorganic chemistry, and as showing that so-called water of crystallisation may in many instances play an important part in molecular structure.

SINCE Lord Rayleigh published in 1897 his interesting results on the oxidation of atmospheric nitrogen by an electric arc, many attempts have been made to devise a practical method of synthesising nitric acid from the gases of the atmosphere. Owing, however, to the fact that nitric oxide is formed by an endothermic change and to the early production of a condition of equilibrium when little oxidation has occurred, the processes hitherto published have been far from economical. In the *Gazzetta* for April 3 E. Rossi describes how the efficiency of such methods may be greatly increased by working with air under a very great pressure. The heating is effected by means of an incandescent resistance similar to the filament of a Nernst lamp, and the nitric oxide is absorbed by concentrated sulphuric acid within the interaction chamber, as fast as it is produced, so as to obviate an equilibrium.

IN the *Verhandlungen* of the German Physical Society (vol. vii. p. 78) L. Graetz replies to the objections raised by Profs. Precht and Otsuki (compare *NATURE*, vol. lxxi. p. 468) against his view that hydrogen peroxide gives rise to a special radiation capable of affecting a photographic plate. He considers that a substance so comparatively non-volatile as hydrogen peroxide, which has a vapour tension less than that of water, and can be concentrated by allowing a current of air to pass through it, cannot be conceived as directly permeating sheets of celluloid and gelatin. Again, the extreme readiness with which hydrogen peroxide is decomposed catalytically by metals makes it improbable that it would pass as such through minute holes in thin metallic plates. In a second communication, published in the same periodical (vol. vii. p. 163), Profs. Precht and Otsuki maintain their original contention by emphasising the minuteness of the quantity

of hydrogen peroxide necessary to affect a photographic plate. The action of the peroxide on sensitive plates has since been discussed in detail by Prof. Otsuki in a paper read before the Society of Chemical Industry on May 1.

A HERBERT SPENCER lectureship has been founded at Oxford by a Hindoo gentleman who is a Master of Arts of Balliol College. The first lecture was delivered on March 9 by Mr. Frederic Harrison, and has been published by the Clarendon Press. It is appreciative, but not—lecturer or printer has surely blundered in regard to the prefix—"an apodictic eulogy." Mr. Harrison's chief criticisms of the synthetic philosophy are:—(1) that, laying all the emphasis on evolution, it disregards the laws of stability and permanence, such as are manifested chiefly in the inorganic sciences—which it accordingly passes over; (2) that its attempt to reduce all manner of sciences under the same laws only succeeds because it neglects the peculiarities which make any one science or set of sciences incommensurable with others, as, *e.g.*, the human sciences are with the non-human. But the lecturer readily admits that Spencer did not allow himself to be confined by the materialistic dogmas with which he set forth, and that while "Philosophy never opened with aspect more physical, it never insisted more imperatively on the law of Justice from man to man, on the supreme duty of Altruism."

THE thirty-fifth of the privately printed opuscula issued to the members of the *Sette of Odd Volumes* is entitled "The Early History of the Royal Society." The author of this brochure is Mr. Henry B. Wheatley, sometime clerk to the Royal Society, who has succeeded in writing a very interesting account of the early years of our national association of men of science. Mr. Wheatley shows that Charles II.—"Founder, Patron, and one of the Royal Society of London for improving Natural Knowledge"—took a genuine interest in the advancement of the society. "True he did not give any money, but then money was never very plentiful with His Majesty. He was always ready to assist with his name and influence. His interest doubtless made the Society the fashion." Doubt is cast on the truth of the story of the paradox put forward by Charles II. concerning the weights of respective bowls of water with or without fish in them. A suggestion of Sir William Petty, the inventor of the double-bottomed boat, as to the society's anniversary, is worth repetition. Aubrey writes:—"I remember one St. Andrew's day I said methought it was not so well that we should pitch upon the Patron of Scotland's day. We should rather have taken S. George or S. Isidore, a philosopher canonized. No, said Sir William Petty, I would rather have had it been S. Thomas's day." Objections were on one occasion made to Charles II. that a member recommended by him for election was a shopkeeper. By way of reply the King "gave this particular charge to his Society, that if they found any more such tradesmen they would be sure to admit them all, without any more ado." Mr. Wheatley records many more quaint stories and odd incidents associated with the society's earlier years, and his paper will excite lively interest in all scientific readers who are able to obtain a copy of it.

MR. HENRY FROWDE has published in pamphlet form the Robert Boyle lecture delivered by Prof. H. B. Dixon, F.R.S., before the Oxford University Junior Scientific Club in 1903, on the nature of explosions in gases.

NEW editions of "Half Hours with the Microscope," by Dr. Edwin Lankester, and "The Preparation and Mounting of Microscopic Objects," by Mr. Thomas Davies, have

been published by Messrs. C. Arthur Pearson, Ltd. Dr. Lankester has made important additions to his book descriptive of the compound microscope and its accessories, and has incorporated a chapter by Mr. F. Kitton on the polariscope and its uses. Dr. John Matthews has edited the second book, and has made several alterations and additions, among the latter being a prefatory chapter dealing with preliminary histological manipulation.

THE *Bulletin de la Société des Naturalistes de Moscou* (1904, Nos. 2 and 3) contains the following papers:—Four notes on the crystalline forms and optical properties of various salts.—On the theory of endosaprophytism with lichens, by A. Elenkin. A defence of the latter as against the mutualistic theory, with a bibliography of the literature of the subject (in German).—The Jurassic corals of the Sudagh, by A. Missuna (with plates). In a total of 108 species, 46 are new for the Crimea, and 14 new species are described. The Crimean coral-fauna has its nearest relative in the Jurassic fauna of Switzerland (this paper is in German).—Materials for the algology of Lake Baikal, by V. Dorogostaisky (with a plate). Results of a two years' study of the algæ in Lake Baikal and its affluents. A list of 350 species is given, a few of them being new (this paper is in French).—History of development of the excretory system with the Amphibia, D. P. Filatow (in German, with a plate).—The same number contains a fine portrait of Prof. T. A. Bredikhin, and a biographical sketch of the late Moscow astronomer, including a sketch of his theory of comet tails, by P. K. Sternberg.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN JUNE:—

- June 2. Venus at maximum brilliancy.
 „ 11. 13h. 3m. Minimum of Algol (β Persei).
 „ 12. 8h. 22m. to 9h. 24m. Moon occults ι^2 Virginis (mag. 4.9).
 „ 13. Saturn. Outer major axis of outer ring = $40''.87$; outer minor axis of outer ring = $6''.03$.
 „ 9h. Mars in conjunction with moon, Mars $6^\circ 14' S$.
 „ 14. 9h. 52m. Minimum of Algol (β Persei).
 „ 15. Venus. Illuminated portion of disc = 0.365 ; of Mars = 0.938 .
 „ 21. 15h. Sun enters Cancer, Summer commences.
 „ 22h. Saturn in conjunction with Moon, Saturn $1^\circ 29' S$.
 „ 23. 23h. Uranus in opposition to the Sun.
 „ 27. 14h. 48m. to 16h. 33m. Transit of Jupiter's Satellite III. (Ganymede).
 „ 29. 14h. 10m. to 15h. 1m. Moon occults θ^2 Tauri (mag. 3.6).
 „ 14h. 15m. to 14h. 56m. Moon occults θ^1 Tauri (mag. 3.9).

A REMARKABLE VARIABLE STAR.—In a note published in No. 4017 of the *Astronomische Nachrichten* Prof. E. C. Pickering states that the light-changes of the variable star 154428, R Coronæ Borealis, are unlike those of any other known variable. A series of observations, made by Mr. Leon Campbell, showed that during the period March–September, 1903, the magnitude underwent remarkable changes between the limits 6.0 and 9.4. Since then until March of the present year it remained stationary at 6.0 m. The unusual character of the changes during April and May is shown in the following table:—

1905		Mag.		1905		Mag.
April 1	...	6.0	...	May 1	...	11.4
11	...	7.3	...	7	...	12.5
21	...	8.4				

Observations with large telescopes are now desirable in order to see whether or not this object disappears entirely.

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It is easily recognised on the Harvard "Map of the Sky," plate No. 18 (118.75), and is nearly equidistant from γ , δ , and ϵ Coronæ.

RADIAL VELOCITIES OF THIRTY-ONE STARS.—For the past ten years line-of-sight observations have been made at the Emerson McMillin Observatory (Columbus, Ohio), but Prof. Lord has now arrived at the conclusion that, as so many better equipped observatories, situated in more favourable atmospheres, are engaged in this work, it seems advisable to discontinue the observations there and direct the available resources into some other channel of research for which they are better equipped. Consequently he has collected all the results obtained during the decennary, and has published them in No. 4, vol. xxi., of the *Astrophysical Journal*. Complete catalogues of the plates taken and of the standard lines employed, and the collected results, are embodied in his communication. Amongst the thirty-one stars dealt with there occur α Cassiopeiæ, Aldebaran, α Arietis, α Persei, Capella, Pollux, Dubhe, Arcturus, β and γ Cygni, and δ Cephei.

MAGNITUDES OF NOVA PERSEI AND NOVA GEMINORUM.—In No. 4017 of the *Astronomische Nachrichten* Prof. A. A. Nijland publishes the results of a number of magnitude observations of Nova Persei and Geminorum. The observations of the former covered the period November 15, 1901, to January 13, 1905, and the figures given show frequent increases of brightness, which were, however, very small. A gradual decrease of magnitude underlies these minor fluctuations, and on January 13 the Nova was of magnitude 10.74.

The Nova Geminorum observations extended over the period March 27, 1903, to December 30, 1904, and on the latter date the magnitude recorded was 13.3, more than 2.7 magnitudes fainter than Nova Persei on the same date.

OXFORD UNIVERSITY OBSERVATORY.—Prof. Turner's report of the work done at the Oxford University Observatory during the twelve months ended April 30 informs us that the Oxford work in connection with the International Astrophysical Catalogue is at last within measurable distance of publication. The measures and reductions were completed last year, and the whole thing is now ready to print. What is still more satisfactory, the university has set aside 1000l. for this purpose, and this is to be supplemented by a similar contribution from H.M. Government.

The stereo-comparator has been used to compare some of the newer with some of the older plates, but, so far, nothing of importance has been discovered; more time will be given to this work when the coming eclipse is past and the Oxford contribution to the International Catalogue is safely in the press. As some of the earlier plates for the catalogue are less satisfactory than the later ones, they are being duplicated, and the new ones are being measured and reduced as opportunity occurs. An expedition from the observatory, comprised of Prof. Turner and Mr. Bellamy, will observe the total solar eclipse of August next in Egypt.

VARIATIONS OF LATITUDE.—The provisional results of the work accomplished by the International Latitude Service during 1904 are given by Prof. T. Albrecht in No. 4017 of the *Astronomische Nachrichten*. The results obtained at the six stations employed in the service are grouped, and the variation of the momentary from the mean pole during the years 1900–4 is graphically shown. From this curve it appears that the year 1904 was marked by a diminution in the amplitude of the variation.

NEW REFRACTION TABLES.—Appendix ii., vol. iv. (second series), of the *Publications of the U.S. Observatory* contains a number of reduction tables for transit-circle observations compiled under the direction of Prof. Eichelberger. All of them, except the refraction tables, are of no use at any other observatory, but these may be found useful by other transit observers. They consist of nine separate tables, in which the logarithms of the various arguments necessary for determining the exact refraction correction for each minute of apparent zenith distance from 0° to 85° are given. An example which precedes the tables clearly illustrates the method of using them. The tables are based upon those of Pulkowa.